

CLAIMS

WE CLAIM:

1. A method for repairing a worn regulator valve comprising the steps of:
boring a housing thereby creating a passage; and
providing a poppet to fit slidably within the passage and wherein the poppet and housing fit so as to restrict airflow therebetween.
2. The method according to claim 1 wherein the step of boring a housing further comprises boring a housing thereby creating a passage wherein said passage is substantially circular in cross-section and wherein the cross-section diameter is larger than the diameter of the worn regulator valve.
3. The method according to claim 1 wherein the step of providing a poppet further comprises a poppet defining a first surface and a second surface in contact with the passage.
4. The method according to claim 1 wherein the step of providing a poppet further comprises a poppet comprising NITRONIC 60 stainless steel.

5. The method according to claim 1 wherein the step of providing a poppet further comprises a poppet defining a tapered regulator with an angle of between about 6.5° and about 7.5° relative to the central axis of the poppet.
6. A repaired regulator valve comprising:
 - a housing having a passage wherein said housing comprises a nickel based alloy;
 - a poppet disposed within said passage.
7. The repaired regulator valve according to claim 6 wherein said poppet comprises the metal alloy NITRONIC 60.
8. The repaired regulator valve according to claim 6 wherein said housing comprises INCONEL 625.
9. The repaired regulator valve according to claim 6 wherein said housing comprises INCONEL 718.
10. The repaired regulator valve according to claim 6 wherein said poppet further defines a tapered regulator at an angle of approximately 7° relative to the central axis of the poppet.

11. The repaired regulator valve according to claim 6 wherein said poppet further defines a tapered regulator at an angle of between approximately 6.5° and approximately 7.5° relative to the central axis of the poppet.
12. The repaired regulator valve according to claim 6 wherein said housing and poppet regulate the flow of air into an aviation deicing system.
13. A regulator valve comprising:
a housing defining a substantially circular passage and wherein said housing comprises a nickel-based superalloy;
a poppet slidably disposed within the circular passage of the housing, wherein said poppet comprises stainless steel; and
said poppet further defining a first surface and a second surface in contact with said housing; and said poppet further defining a tapered regulator positioned between said first surface and said second surface; and
a stop affixed to the poppet wherein said stop limits the movement of the poppet when said stop is in contact with the housing.

14. The regulator valve according to claim 13 wherein said poppet comprises NITRONIC 60 stainless steel.
15. The regulator valve according to claim 13 wherein said housing comprises INCONEL 625.
16. The regulator valve according to claim 13 wherein said tapered surface defines an angle of between about 6.5° and about 7.5° relative to the central axis of the poppet.
17. The regulator valve according to claim 13 wherein said tapered surface defines an angle of approximately 7.0° relative to the central axis of the poppet.
18. A poppet for use in a regulator valve comprising:
 - a stop;
 - a first surface;
 - a second surface;
 - a tapered regulator defining an angle of between about 6.5° and about 7.5° relative to the central axis of the poppet; and
 - a construction material comprising NITRONIC 60.

19. The poppet according to claim 18 wherein said poppet comprises a unitary piece.
20. The poppet according to claim 18 wherein said first surface and said second surface are substantially circular in cross section and wherein the diameter of said first surface and the diameter of said second surface are substantially equal.